REMARKS

This Amendment is fully responsive to the final Office Action dated August 21, 2008, issued in connection with the above-identified application. Claim 1-31 were previously pending in the present application. With this Amendment, claims 1, 13, 14, 26, 27, 29 and 30 have been amended; and claims 32-35 has been added. No new matter has been introduced by the amendments made to the claims or by new claims added. Favorable reconsideration is respectfully requested.

In the Office Action, claims 1-5, 7-10, 13-18, 22, 23 and 26-31 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Rigazio et al. (U.S. Patent No. 6,182,039, hereafter "Rigazio") in view of Pentheroudakis et al. (U.S. Patent No. 7,092,871, hereafter "Pentheroudakis"), and further in view of Bai et al. (U.S. Patent No. 6,311,152, hereafter "Bai").

The Applicants have amended independent claims 1, 13, 14, 26, 27, 29 and 30 to further distinguish the present invention from the cited prior art. For example, claim 1 (as amended) recites the following:

"[a] language model generation and accumulation apparatus that generates and accumulates language models for speech recognition, the apparatus comprising:

a higher-level N-gram language model generation and accumulation unit operable to generate and accumulate a higher-lever N-gram language model that is obtained by modeling each of a plurality of texts as a sequence of words that includes a word string class indicating a linguistic property of a word string constituting two or more words; and

a lower-level N-gram language model generation and accumulation unit operable to generate and accumulate a lower-level N-gram language model that is obtained by modeling a sequence of two or more words within the word string class,

wherein the word string class further includes a virtual word denoting a beginning of the word string class and a virtual word denoting and end of the word string class." (Emphasis added).

The features emphasized above in independent claim 1 are similarly recited in independent claims 13, 14, 26, 27, 29 and 30 (as amended). Additionally, the features

emphasized above are fully supported by the Applicants' disclosure (see e.g., page 22, lines 10-14 and Fig. 9).

As amended, independent claims 1, 13, 14, 26, 27, 29 and 30 are clearly distinguishable over the cited prior art in that the modeling of each of the plurality of text as a sequence of words includes a word string class denoted by virtual words. For example, the virtual word <CS> denotes the beginning of the word string class, and the virtual word <CE> denotes the end of the word string class. The present invention (as recited in independent claims 1, 13, 14, 26, 27, 29 and 30) makes it possible to realize the downsizing of a recognition dictionary and more efficient speech recognition.

In the Office Action, the Examiner relied on Rigazio in view Pentheroudakis, and further in view of Bai for disclosing or suggesting the claimed higher-lever N-gram language model and lower-level N-gram language model of claims 1, 13, 14, 26, 27, 29 and 30.

However, the Examiner indicated that Rigazio in view of Pentheroudakis failed to disclose or suggest modeling of a plurality of text as a sequence of words that includes word string indicating a linguistic property of the plurality of text. However, the Examiner relied on Bai for disclosing of suggesting this feature (e.g., see Fig. 2, element 200).

However, the Applicants maintain that the cited prior art fails to disclose or suggest at least the use of virtual words denoting a beginning and end of a word string class, as similarly recited in independent claims 1, 13, 14, 26, 27, 29 and 30.

As noted above, the Examiner already indicated that Rigazio in view of Pentheroudakis fails to disclose or suggest modeling of a plurality of text as a sequence of words that includes a word string class indicating a linguistic property of the plurality of text. Accordingly, it logical follows that Rigazio in view of Pentheroudakis also fails to disclose or suggest modeling of a plurality of text as a sequence of words that includes word string class (indicating a linguistic property of the plurality of text) denoted by virtual words at the beginning and end of the word string class.

Moreover, the Applicant assert that Bai fails to overcome the deficiencies noted above in Bai. Bai discloses a system for tokenization and named entity recognition of ideographic

language. As illustrated in Fig. 2 of Bai, a decoding module 200 processes text sentence-by-sentence in two stages. The decoding module 200 finds all possible segmentations of a sentence and makes a hypothesis as to the possible named entity boundaries and named entity class. Although Bai discloses processing a sentence of text, the reference fails to disclose or suggest modeling of a plurality of text as a sequence of words that includes a word string class (indicating a linguistic property of the plurality of text) denoted by virtual words at the beginning and end of the word string class.

For at least the above reasons, no combination of Rigazio, Pentheroudakis and Bai would result in, or otherwise render obvious, independent claims 1, 13, 14, 26, 27, 29 and 30 (as amended). Additionally, no combination of Rigazio, Pentheroudakis and Bai would result in, or otherwise render obvious, claims 2-5, 7-10, 15-18, 22, 23, 28 and 31 at least by virtue of their respective dependencies from independent claims 1, 14 and 27.

In the Office Action, claims 6, 11, 12 and 19-21 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Rigazio in view of Pentheroudakis, and further in view of Bai and Bakis et al. (U.S. Patent No. 6,023,673, hereafter "Bakis").

Claims 6, 11 and 12 depend from independent claim 1, and claims 19-21 depend from independent claim 14. As noted above, Rigazio, Pentheroudakis and Bai fail to disclose or suggest all the features recited in independent claims 1 and 14. Additionally, Bakis fails to overcome the deficiencies noted above in Rigazio, Pentheroudakis and Bai. Therefore, no combination of Rigazio, Pentheroudakis, Bai and Bakis would result in, or otherwise render obvious, dependent claims 6, 11, 12 and 19-21 at least by virtue of their respective dependencies from independent claims 1 and 14.

Finally, new claims 32-35 depend from independent claims 13, 14, 27 and 30. Thus, claims 32-35 are distinguishable over the cited prior art at least by virtue of their respective dependencies from the above independent claims. Moreover, claims 32-35 are believed to be distinguishable over the cited prior art on their own merit. For example, claim 32 recites the following features:

"wherein in the speech recognition,

an alignment of words is recognized from an input speech, by referring to a recognition dictionary which describes pronunciation of the words,

a sequence of words including the word string class is assumed in the alignment of words, and

the input speech is recognized based on (i) a probability that the words including the word string class appear in an order of appearance in the assumed sequence of words and (ii) a probability of an appearance of the words or the virtual word denoting the end of the word string class in an order of appearance in the word string class."

The features noted above in claim 32 are similarly recited in claims 33-35. Additionally, the features of claims 32-35 are fully supported by the Applicants' disclosure (see e.g., pg. 30, lines 10-24). The Applicants assert that the cited prior art fails to disclose or suggest at least the recognition method similarly recited in claims 32-35. Accordingly, claims 32-35 are also believed to be distinguishable over the cited prior art on their own merit.

In light of the above, the Applicants respectfully submit that all the pending claims are patentable over the prior art of record. The Applicants respectfully request that the Examiner withdraw the rejections presented in the outstanding Office Action, and pass this application to issue. The Examiner is invited to contact the undersigned attorney by telephone to resolve any remaining issues.

Respectfully submitted,

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